

FEATURES

- 2.5ns typical propagation delay
- Low power
- Differential PECL inputs
- 24mA TTL outputs
- Flow-through pinouts
- ESD protection of 2000V
- Available in 8-pin SOIC package

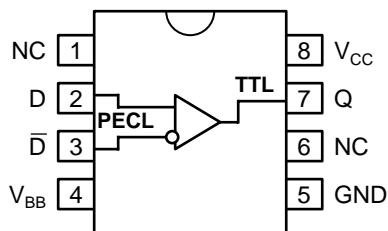
DESCRIPTION

The SY10/100ELT21 are single differential PECL-to-TTL translators. Because PECL (Positive ECL) levels are used, only +5V and ground are required. The small outline 8-lead SOIC package and low skew single gate design make the ELT21 ideal for applications that require the translation of a clock or data signal where minimal space, low power, and low cost are critical.

The VBB output allow differential single-ended, or AC-coupled interface to the device. If used, the VBB output should be bypassed to VCC with a 0.01μF capacitor.

The ELT21 is available in both ECL standards: the 10ELT is compatible with positive ECL 10H logic levels, while the 100ELT is compatible with positive ECL 100K logic levels.

PIN CONFIGURATION/BLOCK DIAGRAM



SOIC
TOP VIEW

PIN NAMES

Pin	Function
Q	TTL Output
D	Differential PECL Inputs
VCC	+5.0V Supply
VBB	Reference Output
GND	Ground

ABSOLUTE MAXIMUM RATINGS⁽¹⁾

Symbol	Parameter	Value	Unit
V _{CC}	Power Supply Voltage	-0.5 to +7.0	V
V _I	PECL Input Voltage	0V to V _{CC} +0.5	V
V _O	Voltage Applied to Output at HIGH State	-0.5 to +5.5	V
I _O	Current Applied to Output at LOW State	Twice the Rated I _{OL}	mA
T _{store}	Storage Temperature	-65 to +150	°C
T _A	Operating Temperature	-40 to +85	°C

TRUTH TABLE

D	\bar{D}	Q
L	H	L
H	L	H
Open	Open	L

NOTE:

- Permanent device damage may occur if ABSOLUTE MAXIMUM RATINGS are exceeded. This is a stress rating only and functional operation is not implied at conditions other than those detailed in the operational sections of this data sheet. Exposure to ABSOLUTE MAXIMUM RATING conditions for extended periods may affect device reliability.

TTL DC ELECTRICAL CHARACTERISTICS

V_{CC} = 4.75V to 5.25V

Symbol	Parameter	T _A = -40°C		T _A = 0°C		T _A = +25°C			T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Typ.	Max.	Min.	Max.		
I _{OS}	Output Short Circuit Current	-80	-200	-80	-200	-80	—	-200	-80	-200	mA	V _{OUT} = 0V
I _{CC}	Power Supply Current	—	20	—	20	—	14	20	—	20	mA	—
V _{OH}	Output HIGH Voltage	2.5 2.0	—	2.5 2.0	—	2.5 2.0	—	—	2.5 2.0	—	V V	I _{OH} = -3.0mA I _{OH} = -15mA
V _{OL}	Output LOW Voltage	—	0.5	—	0.5	—	—	0.5	—	0.5	V	I _{OL} = 24mA

PECL DC ELECTRICAL CHARACTERISTICS

V_{CC} = 4.75V to 5.25V

Symbol	Parameter	T _A = -40°C		T _A = 0°C		T _A = +25°C			T _A = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Typ.	Max.	Min.	Max.		
I _{IH}	Input HIGH Current	—	150	—	150	—	—	150	—	150	μA	
I _{IL}	Input LOW Current	0.5	—	0.5	—	0.5	—	—	0.5	—	μA	
V _{CMR}	Common Mode Range	2.4	V _{CC}	2.4	V _{CC}	2.4	—	V _{CC}	2.4	V _{CC}	V	
V _{PP}	Minimum Peak-to-Peak Input ⁽¹⁾	200	—	200	—	200	—	—	200	—	mV	
V _{IH}	Input HIGH Voltage ⁽²⁾	10ELT 100ELT	3770 4110 3835 4120	3830 4160 3835 4120	3770 4190 3870 4120	—	—	4190 4280 4120 4120	3940 4280 3835 4120	4280 4120	mV	
V _{IL}	Input LOW Voltage ⁽²⁾	10ELT 100ELT	3050 3500 3190 3525	3050 3520 3190 3525	3050 3520 3190 3525	—	—	3520 3050 3525 3190	3050 3555 3190 3525	3555 3525	mV	
V _{BB}	Reference Output ⁽²⁾	10ELT 100ELT	3570 3700 3620 3740	3620 3730 3620 3740	3650 3750 3620 3740	—	—	3750 3690 3740 3740	3690 3810 3620 3740	3810 3740	mV	

NOTES:

- 200mV input guarantees full logic at output.
- These values are for V_{CC} = 5.0V. Level Specifications will vary 1:1 V_{CC}.

AC ELECTRICAL CHARACTERISTICS

VCC = 4.75V to 5.25V

Symbol	Parameter	TA = -40°C		TA = 0°C		TA = +25°C			TA = +85°C		Unit	Condition
		Min.	Max.	Min.	Max.	Min.	Typ.	Max.	Min.	Max.		
tPLH tPHL	Propagation Delay D to Output Q	2.0	3.0	2.0	3.0	2.0	—	3.0	2.0	3.0	ns	CL = 50pF
tskpp	Part-to-Part Skew ⁽¹⁾	—	0.5	—	0.5	—	—	0.5	—	0.5	ns	CL = 50pF
tr tf	Output Rise/Fall Time (1.0V to 2.0V)	—	1.5	—	1.5	—	—	1.5	—	1.5	ns	CL = 50pF
fMAX	Maximum Input Frequency ⁽²⁾	160	—	160	—	160	—	—	160	—	MHz	CL = 50pF

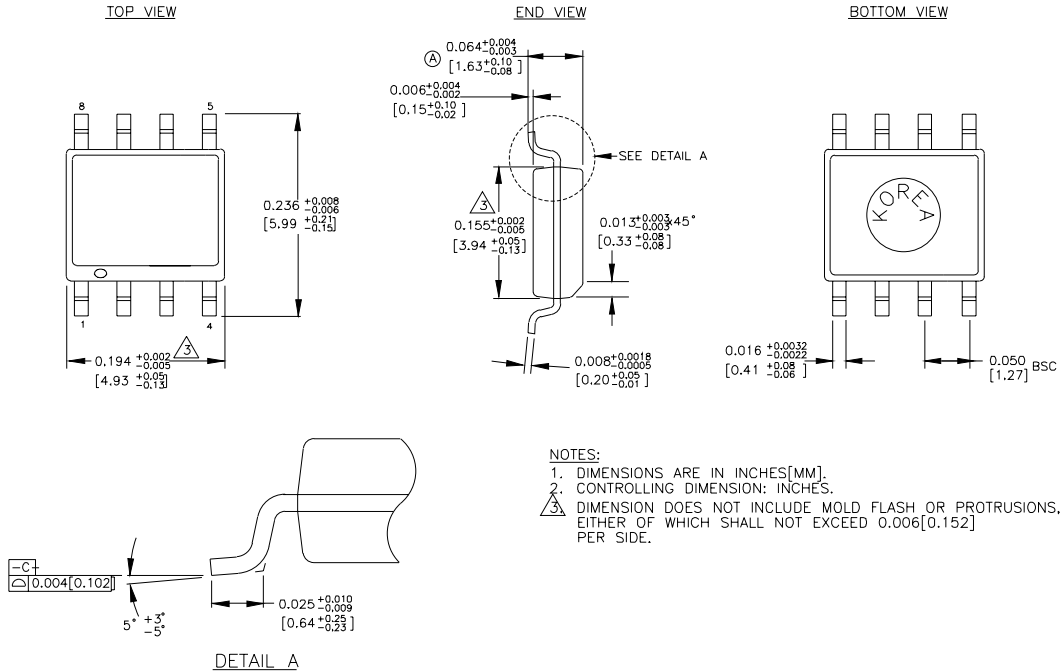
NOTES:

1. Part-to-Part Skew considering HIGH-to-HIGH transitions at common Vcc level.
2. These parameters are guaranteed but not tested.

PRODUCT ORDERING CODE

Ordering Code	Package Type	Operating Range	Vcc Range (V)
SY10ELT21ZC	Z8-1	Commercial	+4.75 to +5.25
SY10ELT21ZCTR	Z8-1	Commercial	+4.75 to +5.25
SY100ELT21ZC	Z8-1	Commercial	+4.75 to +5.25
SY100ELT21ZCTR	Z8-1	Commercial	+4.75 to +5.25

8 LEAD PLASTIC SOIC (Z8-1)



NOTES:
 1. DIMENSIONS ARE IN INCHES[MM].
 2. CONTROLLING DIMENSION: INCHES.
 3. DIMENSION DOES NOT INCLUDE MOLD FLASH OR PROTRUSIONS, EITHER OF WHICH SHALL NOT EXCEED 0.006[0.152] PER SIDE.

MICREL-SYNERGY 3250 SCOTT BOULEVARD SANTA CLARA CA 95054 USA

TEL + 1 (408) 980-9191 FAX + 1 (408) 914-7878 WEB <http://www.synergyssemi.com> <http://www.micrel.com>

This information is believed to be accurate and reliable, however no responsibility is assumed by Micrel for its use nor for any infringement of patents or other rights of third parties resulting from its use. No license is granted by implication or otherwise under any patent or patent right of Micrel Inc.